

WHAT IS CLAIMED IS:

1 1. A method comprising:
2 in response to a request to perform a set of operations on a plurality of logical volumes,
3 identifying a first storage region of a plurality of storage regions to allocate for a first
4 operation of the set of operations on a first logical volume of the plurality of
5 logical volumes; and
6 determining whether a second operation of the set of operations can be performed on
7 a second logical volume of the plurality of logical volumes using a subset of
8 the plurality of storage regions, wherein
9 the subset excludes the first storage region.

1 2. The method of claim 1 further comprising:
2 if the second operation cannot be performed using the subset of the plurality of storage
3 regions,
4 identifying a third storage region of the plurality of storage regions to allocate for the
5 first operation, and
6 determining whether the second operation can be performed using a second subset of
7 the plurality of storage regions, wherein
8 the second subset excludes the third storage region.

1 3. The method of claim 2 further comprising:
2 if the first storage region is allocated for the first operation on the first logical volume,
3 de-allocating the first storage region, and
4 including the first storage region in the second subset prior to determining whether the
5 second operation can be performed.

1 4. The method of claim 2 further comprising:
2 identifying a respective set of rules to configure each respective logical volume of the
3 plurality of logical volumes prior to identifying the first storage region, wherein
4 the respective set of rules for each respective logical volume is used to identify a
5 respective storage region to allocate for the respective logical volume.

1 5. The method of claim 4 wherein
2 the determining whether the second operation can be performed comprises
3 examining a second respective set of rules for the second logical volume.

1 6. The method of claim 2 further comprising:
2 determining a respective storage region to allocate for each respective operation of the set of
3 operations by
4 determining whether a remaining operation of the set of operations can be performed
5 using an unallocated subset of the plurality of storage regions, wherein
6 the remaining operation excludes the respective operation,
7 the unallocated subset excludes the respective storage region, and
8 the unallocated subset excludes an allocated subset of the plurality of storage
9 regions, wherein
10 each storage region in the allocated subset is allocated to one of the set
11 of operations.

1 7. The method of claim 2 wherein
2 each operation of the set of operations is one type of operation.

1 8. The method of claim 2 wherein
2 a first operation of the set of operations is a first type of operation,
3 a second operation of the set of operations is a second type of operation, and
4 the first type and the second type are different.

1 9. The method of claim 2 wherein
2 the first storage region conforms to a first intent of the first logical volume.

1 10. The method of claim 9 wherein
2 the first intent comprises a first rule used to configure the first storage region to provide the
3 first logical volume.

1 11. The method of claim 2 further comprising:
2 performing the first operation on the first logical volume using the first storage region.

- 1 12. The method of claim 2 wherein
2 one operation of the set of operations is one of the following:
3 creating the first logical volume;
4 growing the second logical volume; and
5 adding a mirror to a third logical volume of the plurality of logical volumes.
- 1 13. A medium for storing computer executable instructions, wherein a method is
2 performed in response to executing the instructions, the method comprising:
3 in response to a request to perform a set of operations on a plurality of logical volumes,
4 identifying a first storage region of a plurality of storage regions to allocate for a first
5 operation of the set of operations on a first logical volume of the plurality of logical
6 volumes; and
7 determining whether a second operation of the set of operations can be performed on a
8 second logical volume of the plurality of logical volumes using a subset of the
9 plurality of storage regions, wherein the subset excludes the first storage region.
- 1 14. The memory medium of claim 13 wherein the method further comprises:
2 if the second operation cannot be performed using the subset of the plurality of storage
3 regions,
4 identifying a third storage region of the plurality of storage regions to allocate for the first
5 operation, and
6 determining whether the second operation can be performed using a second subset of the
7 plurality of storage regions, wherein
8 the second subset excludes the third storage region.
- 1 15. The memory medium of claim 14 wherein the method further comprises:
2 if the first storage region is allocated for the first operation on the first logical volume,
3 de-allocating the first storage region, and
4 including the first storage region in the second subset prior to determining whether the
5 second operation can be performed.
- 1 16. The memory medium of claim 14 wherein the method further comprises:

2 identifying a respective set of rules to configure each respective logical volume of the
3 plurality of logical volumes prior to identifying the first storage region, wherein
4 the respective set of rules for each respective logical volume is used to identify a
5 respective storage region to allocate for the respective logical volume.

1 17. The memory medium of claim 16 wherein
2 the determining whether the second operation can be performed comprises
3 examining a second respective set of rules for the second logical volume.

1 18. The memory medium of claim 14 wherein the method further comprises:
2 determining a respective storage region to allocate for each respective operation of the set of
3 operations by
4 determining whether a remaining operation of the set of operations can be performed using an
5 unallocated subset of the plurality of storage regions, wherein
6 the remaining operation excludes the respective operation,
7 the unallocated subset excludes the respective storage region, and
8 the unallocated subset excludes an allocated subset of the plurality of storage
9 regions, wherein
10 each storage region in the allocated subset is allocated to one of the set
11 of operations.

1 19. The memory medium of claim 14 wherein
2 each operation of the set of operations is one type of operation.

1 20. The memory medium of claim 14 wherein
2 a first operation of the set of operations is a first type of operation,
3 a second operation of the set of operations is a second type of operation, and
4 the first type and the second type are different.

1 21. The memory medium of claim 14 wherein
2 the first storage region conforms to a first intent of the first logical volume.

1 22. The memory medium of claim 21 wherein
2 the first intent comprises a first rule used to configure the first storage region to provide the
3 first logical volume.

1 23. The memory medium of claim 13 wherein the method further comprises:
2 performing the first operation on the first logical volume using the first storage region.

1 24. The memory medium of claim 13 wherein
2 one operation of the set of operations is one of the following:
3 creating the first logical volume;
4 growing the second logical volume; and
5 adding a mirror to a third logical volume of the plurality of logical volumes.

1 25. A memory medium that stores instructions executable by a computer system,
2 wherein the computer system implements a method in response to executing the instructions,
3 the method comprising:
4 receiving a request to create first and second logical volumes, wherein the first and second
5 logical volumes are required to have first and second storage structures,
6 respectively, and first and second storage quantities, respectively;
7 selecting a first collection of physical memory regions;
8 allocating the first collection of physical memory regions to create the first and second logical
9 volumes;
10 determining whether the first and second logical volumes have the first and second storage
11 quantities, respectively, and the first and second storage structures, respectively;
12 if the first and second logical volumes do not have the first and second storage quantities,
13 respectively, and the first and second storage structures, respectively, then select
14 a second collection of physical memory regions, wherein the second collection
15 is different from the first collection.

1 26. The computer readable medium of claim 25 wherein the method further
2 comprises:
3 allocating the second collection of physical memory regions to create new first and second
4 logical volumes;
5 determining whether the new first and second logical volumes have the first and second
6 storage quantities, respectively, and the first and second storage structures,
7 respectively.